DOCUMENT RESUME

ED 072 239 VT 018 684

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TITLE	An Experiment in Attitude Modification of Selected Students Enrolled in the One-Year Vocational and Two-Year Technical Programs at Southeastern Community College, Whiteville, North Carolina. Occupational Education Research Project Final Report.
INSTITUTION	Southeastern Community Coll., Whiteville, N.C.
SPONS AGENCY	North Carolina Research Coordinating Unit in Occupational Education, Raleigh.; Office of Education (DHEW), Washington, D.C.
PUB DATE	31 Aug 72
NOTE	45p.
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	Associate Degrees; *Changing Attitudes; Community Colleges; Educational Research; *Human Relations; Junior Colleges; *Post Secondary Education; Semantic Differential; *Student Attitudes; *Teaching Methods; Teaching Techniques; Vocational Education; Work Attitudes
IDENTIFIERS	*North Carolina

ABSTRACT

This experiment in attitude modification was undertaken at a community college to: (1) develop a systematic procedure for assessing student attitudes, (2) determine if human relations courses had any effect on student attitudes, and (3) determine if the semantic differential was an effective tool for measuring student attitudes. Full-time students enrolled in the 1-year vocational programs and the first year students of the 2-year associate degree programs were taught in one of four conditions: (1) teacher-directed human relations course, (2) student-oriented course, (3) group counseling course, and (4) traditional course. Pre-and post-assessment using Osgood's semantic differential scale revealed that: (1) Student attitudes underwent a statistically significant positive change on the activity factor for three of the concepts being tested, each of which was relevant to the world of work, (2) None of the concepts received positive attitude changes for both sexes in all the sections, (3) Males in each section reacted positively to all three concepts, with males in the student-oriented section showing the greatest degree of positive attitude modification, and (4) The teacher-directed section was the only one in which all the females indicated a positive attitude change. (SB)

ED 072239

AN EXPERIMENT IN ATTITUDE MODIFICATION OF SELECTED STUDENTS ENROLLED IN THE ONE-YEAR VOCATIONAL AND TWO-YEAR TECHNICAL PROGRAMS AT SOUTHEASTERN COMMUNITY COLLEGE WHITEVILLE, NORTH CAROLINA

VT018684

ED 072239

OCCUPATIONAL EDUCATION RESEARCH PROJECT
FINAL REPORT
Vocational Education Amendments of 1968 (Public Law 90-576)
(Title I - Part C - Sec. 131 (b))

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August 31, 1972

NORTH CAROLINA STATE DEPARTMENT OF PUBLIC INSTRUCTION

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Raleigh, North Carolina

27602

PREFACE

Upon receipt of their research grant, Southeastern Community College employed Mr. James W. Eades as project director for this grant. They also contacted the Department of Industrial and Technical Education at North Carolina State University, Raleigh, North Carolina, and obtained the assistance of Mr. Frank C. Townsend, a doctoral candidate in that department. Mr. Townsend served as the research investigator for this project which also served as the basis for his doctoral study. This final report has been abstracted from the completed doctoral study submitted in August of 1972 to the Department of Industrial and Technical Education by Mr. Townsend.

ACKNOWLEDGMENTS

The authors wish to express their appreciation to the following people who helped during the course of this research:

Dr. Joseph T. Nerden, Professor and Dr. Durwin M. Hanson, Professor and Department Head, Department of Industrial and Technical Education, North Carolina State University, Raleigh, North Carolina.

Dr. A. C. Linnerud, Professor of Experimental Statistics, North Carolina State University, Raleigh, North Carolina.

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SECTION I

ABSTRACT

This experiment in attitude modification was undertaken during the fall quarter of 1971, at Southeastern Community College, Whiteville, North Carolina. This school was one of the 56 members of the Community College System in North Carolina. The objectives of this research were:

1. To develop a systematic procedure for assessing student attitudes
2. To determine if courses known as "human relations courses" had any effect on student attitudes, and if so, what such an effect was
3. To determine if the semantic differential was an effective tool for measuring student attitudes

The subjects for this experiment were full-time students enrolled in the one-year vocational programs, and the first year of the two-year technical associate degree programs. The total number of subjects involved in this research project, that is, those who completed the research, was 85. Dropouts during the quarter, due to illness, deaths, and disinterest, reduced the original number to this final figure. The hypotheses upon which this research was based were as follows:

> Attitudes with regard to the evaluative, potency, and activity factors of the semantic differential may be successfully modified in post-secondary community college students by involving them in instruction designated as "human relations courses." The learning procedure which will produce the greatest attitude changes in students for the concepts tested, is that which involves the student in the planning and conduct of the class.

The learning sections were used in this research. The first of these sections was the traditional classroom situation,

which taught the regularly scheduled human relations course as outlined in the school bulletin. The second and third sections were a combination of lectures, guest speakers, films and field trips. One section was totally teacher-directed, and the other was student-oriented, with the class itself making its desires and needs known and participating in the planning of the activities. The final section was a series of group counseling sessions which made use of the typical techniques of group counseling for its program.

The semantic differential as developed by Charles Osgood and his associates was the instrument used to assess the attitude changes of the students in this research. This instrument contained six concepts, and used 18 bi-polar scales by which the students rated these concepts. Statistical analysis was conducted using the method of analysis of covariants. The covariants used in this analysis were the sex of the student and his recorded score on the pre-test. Analysis was made through the facilites of the Triangle Universities Computering Center.

An overall, general conclusion which could be drawn from this research was that male subjects indicated that any form of instruction which they felt to be relevant to the world of work was of benefit to them. No such general conclusion could be drawn from the data for the female subjects. Both of the research hypotheses were accepted in some of the teaching situations. Although the general conclusion drawn here was valid, indications were that more detailed research needed to be conducted in this specific area.

SECTION II

THE PROBLEM

Brief Statement of the Problem

This study was aimed at the determination of student attitude changes as a result of participating in one of four distinct sections of a course in human relations. The subjects for this experiment were full-time students enrolled in the occupational division of the community college, plus the full-time first-year students enrolled in the technical programs. For the purpose of the study, it was decided to have the four groups include traditional instruction, teacher-directed, student-oriented and group counseling. All the sections were to meet in regularly scheduled class situations.

Justification for the Study in Future Planning

In reviewing the literature relevant to the study, little work was found which dealt with the field of student attitudes pertaining to vocational education instruction. Even fewer studies used the tool of the semantic differential in such research. That the semantic differential could be effectively used in this type of evaluation was one of the purposes of this paper; that it could be of great benefit to teachers, administrators, and supervisors in their attempts to effectively evaluate existing curriculums was another purpose. Investigation of student attitudes toward their schools, instructors, and communities is an important aspect of vocational/technical research and should be used more often than the search of the

literature indicates that it has been. If, from this paper one procedure for measuring these attitudes is developed, then this research has proven to be worthwhile.

Need for the Project

The administration of the college indicated that such a study would be one additional method of successfully evaluating their instruction. They felt that the students' attitudes were yet another measuring stick which the school should use to help determine the effectiveness of their instructional programs as indicated by the attitudes of the students. As the school had been constantly working to improve its instructional programs, the development of a quick, effective, reliable, and valid method of measuring student attitudes was considered a necessary step. Also, the school administration felt that by becoming aware of the attitudes of its students, it could provide instruction which would be more relevant to the aims and objectives of those students.

The primary task undertaken in this research was to develop an instrument which could be used in assessing attitudes as well as the actual administration of that instrument to determine the attitudes of the students of Southeastern Community College. A secondary aim of this research was the desire to determine if human relations courses had an effect on student attitudes, and if so, exactly what that effect was.

Summary of Related Literature

As this research project was primarily concerned with attitude research using the semantic differential, a search of

the literature was conducted under two main headings--Attitude Research in General, and Semantic Differential Research in General. Emphasis was placed on that literature dealing with the use of the semantic differential in attitude research in vocational education. Computer searches were made of the DATRIX* system files, through the Spring of 1970, and the complete ERIC** files. From Spring 1970 to the most current volume, Dissertation Abstracts were searched by hand. In the Education Index a search was made of the volumes for the last ten years under the terms semantic differential, research in education--attitudes, and research in vocational education. Bibliographies of dissertations and other basic texts were also used as search sources.

Little evidence was found relating to research which was being done in the area of attitude assessment in occupational and vocational education. Research in the literature under the heading "attitude research" led to work done on occupational counseling, but little research was found which had been done on the assessment of students' attitudes toward their present education. An explanation for this could be that, as far as was determined, no standard accepted procedure for assessing attitudes had been developed.

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*Direct Access to Reference Information--Xerox

**Educational Resources Information Center

SECTION III

OBJECTIVES A D HYPOTHESES

Objectives

The objectives of this project, as stated in the Grant Proposal Appendix, were directed toward defining students' attitudes concerning their community, school, instructors, and overall world of work. The three-fold objectives of the project were as follows:

1. To develop a systematic procedure for assessing student attitudes
2. To determine if human relations courses have an effect on student attitudes and, if so, what that effect is
3. To determine if the semantic differential is an effective tool for measuring student attitudes in a two-year community college.

Hypotheses

1. Attitudes with regard to the evaluative, potency, and activity factors of the semantic differential may be successfully modified in post-secondary occupational community college students by involving them in instruction designated as human relations courses.
2. The learning procedure which will produce the greatest attitude changes in students for the concepts tested is that which involves the student in the planning and conduct of the class.

SECTION IV

PROCEDURES

Development of the Instrument

During the construction of the instrument for this research, several factors were considered. These were as follows:

1. Ease and rapidity for the subject taking the test
2. Ease and rapidity in the administration of the test
3. The adaptability of the test for machine scoring
4. The possibility of hand scoring
5. Unnecessary time delay in obtaining the instrument

Taking all these under consideration, the final form of the instrument was determined. A sample of this instrument is found at the end of this paper.

The score sheets for machine scoring used in this experiment had initially been designed for other use, but because immediate availability was a major consideration in the selection of the forms used, they were adapted for use in the project.

A sheet of paper was then printed with the adjectives in the exact positions relative to the lines for the seven responses on score sheets. The center of the template was then cut out so that the concept and the spaces for the subjects to indicate their response showed from the bottom sheet. Enough templates were constructed so that each subject received one. When taking the test, the subject simply lined up the template with the score form and filled in one of the seven spaces.

Once the form of the instrument was determined, the next phase of the project was to establish exactly which concepts would be used in order to meet the stated objectives of the project.

Practically all the research viewed for this paper which dealt with the semantic differential referred to Charles Osgood's book The Measurement of Meaning.[8] This work was also used here as the basic reference for this section of the paper.

A committee of faculty members met with the project director and the research investigator for this research and, using Osgood's criteria, determined the concepts to be used in the research. The concepts which were finally chosen were picked from a longer list of possibilities. The time required to administer the test was also taken into consideration during this process. Based on findings by other researchers, it was determined that for an instrument containing 18 scales, six concepts was the maximum number that could be used, and still enable the assessment to be made in the limited class period.

The following phrases describe six concepts used in the test instrument: (1) school; (2) I often feel unwanted at school; (3) career planning; (4) Columbus County; (5) teachers sure are smart; (6) I cannot wait until I go to work. This research was directed toward determining the attitudes of the students as related to the school, instructor, community and the "world of work." Two concepts were assigned to the broad area of the school and the "world of work," while the areas of community and instructor were assigned only one concept each. The reason for this difference was that while the element of time in the administration of the test directed the use of only six concepts, the committee considered the areas of school and work the more significant areas, and these areas would provide a

greater difference in attitude. Since this project had as its major objective attitude research, and not empirical research into the qualities of the semantic differential, the advantage of using scales, that is bi-polar adjectives, which were researched and reliable was apparent from the beginning. Osgood and his associates had developed a list of 50 such scales,[9] and it was from this list that the scales for this assessment were taken.

The semantic differential had been used with three point, five point, seven point, nine point, tec., scales. Osgood found that with seven alternatives, or prints, all of the points tend to be used, and with approximately the same frequencies for each.[10] The seven point scales became the basis for the research instrument in this project. See Figure 1, page 11.

EXAMPLE OF THE 7-POINT SCALE SCHOOL

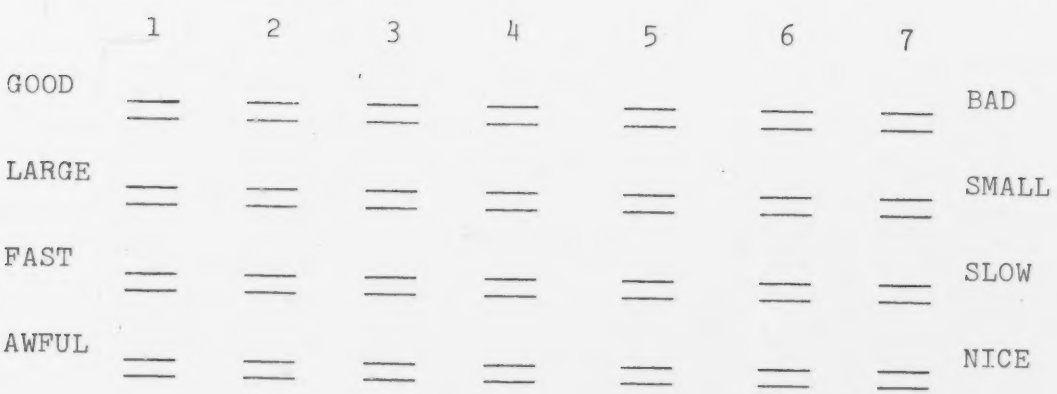

Figure 1

SUBJECTS

The subjects for this research project were enrolled in the full-time curriculum at Southeastern Community College, Whiteville, North Carolina. All the subjects were enrolled in either the one-year vocational diploma programs, or the first year of the two-year technical associate degree programs. See Figure 2, page 17. The total number of students enrolled in these curricula was slightly over 200, but because of scheduling and other conflicts, the actual number of students who signed up to participate in the research project was 109. During the course of the project, 24 of these dropped out. Five students dropped for reasons of health, the remainder dropped the course without giving a reason. This left a total of 85 participants for the project who completed both the pre-test and post-test. It was the scores of 85 participants which were used to compute the data for the project. The original number of 109 students was then divided into four groups or sections.

One of the stated objectives in this experiment was to be an attempt to assess and to measure the improvement of the attitudes of the subject toward school, community, teacher, and the world of work. Also, an attempt was to be made to develop a method of attitude assessment which might be considered for use in other similar situations. It was decided that for this experiment there would be four research sections, each of which was to be engaged in a different method of instruction for the same human relations course. In view of the

objectives for the overall project, the general method of instruction for each section was discussed with the administration of Southeastern Community College. After the initial planning session, individual discussions were held with the project director at the college and the guidance counselors, who were vitally concerned with the project.

Since the research for this project was conducted by the instructors at the school, further discussions were held between the administration, the project director, and the instructors to decide the type of teaching in which the instructors could best participate, the types of students who would be involved, and the scheduling logistics for the research sections. In view of this, it was suggested that a regularly scheduled human relations course be taught using several different methods. These variations were approved, and the human relations course was scheduled to be taught using the four different procedures described below.

Section I - This section consisted of 19 students, ten of which were males and was taught by a woman with 20 years of work experience in industry before she obtained her associate degree at Southeastern Community College. She then went on to complete a B.S. in Business Education and Administration with further graduate hours in guidance and counseling. She had taught the human relations course in the regular manner three times previous to the time of this study. This section was taught as a regularly scheduled human relations course as listed in the Southeastern Community College Catalog. The

traditional lecture method of instruction was used with this section.

Section II - This section contained 24 females and was taught by the same instructor as Section I. The research that was conducted in this section consisted of teacher-directed lectures, use of movies, and visitations to industry. The term "teacher-directed" was used to indicate that the teacher determined all course objectives and set up the schedule to be followed by the class. The students had little, if any, voice in the conduct of the class.

Section III - This section contained 27 students (13 of which were males), and it was taught by the same instructor as was Section I and II. The research conducted in this section consisted of lectures, use of motion pictures, and visitations but differed from Section II in that the students had a major voice in the selection and scheduling of the outline of concepts to be covered, the materials used, and to some extent the overall objectives of the course.

Section IV - This section contained 15 students (12 of which were males), and it was taught by four instructors.

At the time of the study, one of the instructors had completed all course work for a doctorate in education, two had Master's Degrees in Religious Education and the fourth was a registered nurse with a B.S. in Nursing and 20 years of work experience. All the instructors were full-time members of the faculty at Southeastern Community College but were in four different departments. This

section was sub-divided into four groups and each was given group counseling conducted by the respective instructors. This counseling was directed toward the major areas of the research projects: school, instructor, community, the "world of work."

CURRICULA REPRESENTED THE FOUR SECTIONS

SECTIONS	I	II	III	IV	TOTALS
Air Conditioning, Heating, Regrigeration			2	3	5
Associate Degree Nursing, (RN)	22	5	2	2	31
Business Administration	2	1		1	4
Auto Mechanics			1	4	5
Cosmetology			2	2	4
Diesel Mechanics			2	2	4
Electronics		2			2
Electronics Technical		3			3
Radio and Television		7			7
Secretarial				1	1
Teacher Aid				1	1
Technical Diploma Nursing (LPN)		8			8
Technical, unidentified		1			1
Welding			6	3	9
TOTALS	24	27	15	19	85

Figure 2

SEXES REPRESENTED IN THE FOUR SECTIONS

AND PERCENTAGE RECEIVING FINANCIAL AID

	Males	Females	Percentage Receiving Aid
Section I Teacher-Directed 24 Subjects	0%	100%	38%
Section II Student-Oriented 27 Subjects	48%	52%	26%
Section III Group Counseling 15 Subjects	80%	20%	20%
Section IV Regular Human Relations Courses	53%	47%	32%

Figure 3

Implementing the Study

The human relations course sections conducted for this research met as regularly scheduled classes during one quarter at Southeastern Community College. The classes began on Tuesday, November 30, 1971 and were concluded on February 21, 1972. The pre-assessment was administered during the first week of classes to each of the four sections of the course. The class schedule for each section is shown in the chart below:

Section	Time	Days
I	2:00-3:15	Tues. & Thurs.
II	3:30-4:40	Mon. & Wed.
III	3:30-4:40	Mon. & Wed.
IV	2:30-3:20	Mon., Wed., & Fri.

Figure 4

The post-assessment for all four sections was given during the last week of regular classes. The project director accepted the responsibility of administering both the pre- and post-assessments. The same procedure was used with all the sections. This procedure, and the presence of the same person each time, was used to reduce the chance of administrative errors with the administration of the test. Before administering the assessment each instrument was given an identification number. Each subject was given an 8 1/2 by 11 inch sheet of paper which had his project identification number on it and space provided for name, date, and curriculum. The remainder of the sheet was blank. This provided the space necessary for information to be added at a later time if needed.

Each instrument was marked to identify section, and whether or not it was the pre- or post- assessment. The test administrator gave specific instructions of what each student was to do, then proceeded with administering the assessments.

Analysis of the Data

The use of computers to analyze the data was planned from the beginning of the research. The semantic differential instruments used by the subjects were printed on 8 1/2 by 11 inch sheets with a box at the top to record the identification information necessary. This information consisted of the section number of the subjects; his identification number within that section; the test being taken, either pre-test or post-test; and the concept to which the subject was reacting. As there were six concepts, each subject received six sheets, one concept on each sheet. He also received a template as described previously. This template listed the bi-polar adjectives used to rate the concepts.

The instrument used a seven point rating scale. Hence, the subject had seven different possible places in which to mark (with a pencil) his reactions to the concept for each bi-polar adjective. Thus, for each adjective pair there was a response which could be recorded in a range from one to seven, with four being the neutral position. A rating of one on this assessment was the most positive, while a rating of seven was the most negative. In the case of the evaluative factor, which is really a rating of "goodness/badness" a response in the one space was the most positive reaction toward goodness or very good.

The first step in processing this data consisted of having each of the six sheets for the 85 subject "read" by an IBM 1231 reader/scanner. This equipment then placed this information on

standard key punch cards. The cards were next compiled so that all of the data for each subject was contained on a single card. The data was then read into the computer through the facilities of the Triangle Universities Computering Center (TUCC) in Durham, North Carolina. Outlet terminals located at North Carolina State University were used to imput the data and program.

In order to verify the statistical findings, two programs were used with this data. The first run was made using the U.C.L.A. bio-medical series MD04V program. The second run was made using the Statistical Analysis System (SAS) developed by the North Carolina State University's Department of Statistics. Both of these programs made use of the analysis of the covariants. The primary reason for selecting this type of analysis was the ease with which it could handle groups with widely varied members.

SECTION V

RESULTS

The instrument used in this research was composed of six concepts, with 18 bi-polar adjective pairs by which the student judged these concepts. These adjective pairs were divided into three factor groups for each of the concepts. Each factor was represented by six bi-polar adjective pairs. For the entire experiment there were 18 factor groupings. The three factors represented in the adjective pairs were the evaluative, potency, and activity factors. To obtain the scores for each of these factors, the scores for the six adjectives for that factor were added together to give a total factor score.

The statistical analysis that was performed on this date, that is, the raw factor scores, was the analysis of covariants. The covariants used were the pre-assessment scores and the sex of each subject. The facilities at the Triangle Universities Computering Center (TUCC) were used to compute the data. The computer run-out presented the data in such a manner that a comparison of unadjusted and adjusted scores could easily be made.

Of the 18 factor scores, three were (statistically) significantly different. The level of significance used in this research was the .05 level. Each of the three concepts that were significantly different were so only for the activity factor groupings. This factor was best defined as a subject's reacting to a concept in terms of "motion/stillness." The

bi-polar adjective pairs used to represent this factor were:

Ferocious --- Peaceful
Green ------- Red
Dull -------- Sharp
Fast -------- Slow
Active ------ Passive
Hot --------- Cold

A positive attitude change was an indication that the subject's attitude underwent a change in the direction of more motion of activity. The lower the numerical factor score the more positive the attitude.

The three concepts which were significantly different were represented by the phrase: school, career planning, and I cannot wait until I go to work. The factor scores for each of the concepts was compared by sex; that is, the male versus the female as a whole, and by research section. The results found for these concepts are represented in Charts I, II, III, and IV, pages 25-28.

The unadjusted scores for each of the sections, and the unadjusted scores for the males and the females as a whole where given in these charts. Also represented were the adjusted means for each of the sections and for the males and females.

These charts show that the males tend to have a positive attitude change for each of the concepts in the traditional section and the student-oriented section. The one section in which the males did not show a positive for all concepts was the section which participated in group counseling. For the concept represented by the phrase "school" the subjects indicated a negative change in attitude. The males in the student-oriented section underwent the greatest degree of positive attitude change. Although the attitude change for each of the other concepts for

the males in all the other sections was also positive, the degree of change was not as great.

The female subjects presented an entirely different picture. For these subjects there was only one concept which showed a net positive change in attitude for all sections. However, the degree of change was so small that it could not be considered indicative of a general trend. This concept expressed by the phrase, "I cannot wait until I go to work." For this concept the traditional and student-directed sections only indicated a positive attitude change. These results can be seen in Charts I, II, and III. It was interesting to note that the negative attitude changes in the student-oriented section and the group counseling section was much greater than were the positive attitude concepts.

For the concepts expressed in the phrases "school" and "career planning," the results for the female subjects basically followed similar patterns. For both of these concepts, the teacher-directed section showed a positive attitude change, while the student-oriented section showed a negative attitude change. Also, the group counseling section for the concept expressed by the phrase "career planning" showed a positive change, but the change in all other sections for both concepts was so small as to be inconclusive.

For the female subjects, only the teacher-directed section showed a positive attitude change for all three of the statistically significant concepts. The traditionally taught section, as indicated on Chart IV, also showed a degree of

positive change, but this change was so small, and one section had a negative attitude change, that this degree of change was considered to be inconclusive.

SCORES FOR THE ACTIVITY FACTOR

FOR THE CONCEPT AS EXPRESSED BY THE PHRASE "SCHOOL"

	SECTION	UNADJUSTED PRE-SCORE	UNADJUSTED POST-SCORE	ADJUSTED X
Overall Scores By Section	I	21.78	20.26	20.24
	II	20.63	19.25	17.50
	III	19.11	21.07	21.51
	IV	21.13	21.93	22.27
				CHANGE
Overall Scores By Sex	Males	21.09	19.80	positive
	Females	20.08	21.04	negative
Males	I	23.50	21.00	positive
	III	19.15	17.23	positive
	IV	20.70	21.70	negative
Females	I	18.86	19.00	none*
	II	20.63	19.25	positive
	III	19.07	24.64	negative
	IV	22.00	22.40	none*

*Indicates a change of less than .50 which is considered inconclusive.

Chart I

SCORES FOR THE ACTIVITY FACTOR

FOR THE CONCEPT AS EXPRESSED BY THE PHRASE "CAREER PLANNING"

	SECTION	UNADJUSTED PRE-SCORE	UNADJUSTED POST-SCORE	ADJUSTED X
Overall Scores By Section	I	21.47	20.47	20.22
	II	17.17	15.83	15.20
	III	19.30	19.44	19.50
	IV	21.73	22.07	21.82
Overall Scores By Sex	Males	21.14	19.45	CHANGE positive
	Females	18.54	18.88	none*
Males	I	22.42	20.92	positive
	III	19.53	16.77	positive
	IV	21.70	21.20	positive
Females	I	19.86	19.71	none*
	II	17.17	15.83	positive
	III	19.07	21.93	negative
	IV	21.80	23.80	negative

*Indicates a change of less than .50 which is considered inconclusive.

Chart II

SCORES FOR THE ACTIVITY FACTOR

FOR THE CONCEPT AS EXPRESSED BY THE PHRASE

"I CANNOT WAIT UNTIL I GO TO WORK"

	SECTION	UNADJUSTED PRE-SCORE	UNADJUSTED POST-SCORE	ADJUSTED X
Overall Scores By Section	I	20.74	21.63	21.73
	II	18.21	17.29	17.45
	III	21.04	18.74	18.50
	IV	22.87	22.27	21.57
				CHANGE
Overall Scores By Sex	Males	22.60	20.57	positive
	Females	19.02	18.92	positive
Males	I	20.58	22.17	negative
	III	23.15	17.62	positive
	IV	24.30	22.50	positive
Females	I	21.00	20.71	none*
	II	18.21	17.29	positive
	III	19.07	19.79	negative
	IV	20.00	21.80	negative

*Indicates a change of less than .50 which is considered inconclusive.

Chart III

THE ACTIVITY FACTOR

FOR CONCEPTS AS EXPRESSED BY

	SECTION	SCHOOL	CAREER PLANNING	I CANNOT WAIT UNTIL I GO TO WORK	NET CHANGE
Males	I	2.50	1.50	-1.59	2.41
	III	1.92	2.76	5.53	10.21
	IV	-1.00*	.50	1.80	3.30
Females	I	- .14	.15	.19	.20
	II	1.38	1.34	.92	3.64
	III	-5.57	-2.86	- .72	- 9.15
	IV	- .40	-2.00	-1.80	- 4.20

Absolute change in the unadjusted scores for the activity factor for the concepts which were significantly different.

*The negative (-) indicates a negative change in attitude. The mathematical value was used in the calculation for absolute net change.

Chart IV

SECTION VI

CONCLUSIONS

The results of this experiment indicated that the attitudes of the students underwent a statistically significant positive attitude change on the activity factor for three of the concepts being tested. Those concepts were expressed by the phrases: I cannot wait until I go to work; career planning; and school. The activity factor was best defined as the subject's reactions to the concepts in terms of motion/stillness. A positive attitude change was an indication that the students' attitudes underwent a change in the direction of more motion or activity.

Each of the concepts which underwent this positive change was relevant to the world of work. From this it could be concluded that the subjects were vitally concerned with education that was relevant to their plans for future employment and their immediate entry into this world of work. Thus, the subjects, particularly the males, showed a desire to learn about their chosen careers and get out of school and go to work. School was considered to be the agent that enabled the student to successfully complete this transition.

None of the concepts received positive attitude changes for both sexes in all of the sections. The males in each section reacted positively (i.e. liked), all three concepts. The male subjects in the student-oriented section showed the greatest degree of positive attitude modification. The males

in the traditional and group counseling sections reacted positively to two of the three statistically significant concepts. The female subjects did not follow the same pattern as did the males. Overall, they reacted positively to or indicated no change in the teacher-directed and traditional learning situations and negatively to the student-oriented and group counseling sections.

The indications of these results were that the male subjects were interested in learning any material relevant to the world of work regardless of the manner in which the material was presented. However, the results indicated that the males did show a more positive reaction in those sections which actively involved them in the class preparations and conduct. Thus, for the male subjects both research hypotheses were accepted for the concepts which had a statistically significant difference. It follows that in vocational education instruction which is made more relevant to the world of work will more successfully engage the interest and attention of the male students. Hopefully, those courses which do engage the male students' interest and attention would show a lower attrition rate and increased motivation to succeed in the course.

The female subjects did not show an overall positive change in attitude for those concepts which were significantly different. The results indicated that the female students were in favor of the teacher-directed learning situation and against taking an active part in the class preparations and conduct. They also showed negative tendencies toward the group counseling

sessions. Thus, it could be concluded that the female students were more influenced by the method of instruction, rather than by the content of instruction. The female students were more receptive to the method used to present the material than they were to the material itself.

The teacher-directed section was the only section in which all of the females indicated a positive attitude change. Thus, only for this section can the first research hypothesis be accepted. The second research hypothesis cannot be accepted in any of the sections for the female students. One question which this research brought to light was whether or not the female students were actually interested in learning topics relative to the world of work. There were insufficient results from which to draw any conclusions about these questions. The indications are that further study needs to be done in this area. If a conclusion could be drawn from these results this would lead to a completely different view of the teaching techniques which would prove most effective for each sex. This research did indicate that the male and female students did not react the same way to the materials presented or the teaching situations. If instruction is to be most effective for all students on the junior college level and vocational education situation, it would appear from this research that classes should be segregated by sex and each sex taught in a different manner-the males in a more self-governing manner and the females in a more traditional or authoritative manner. If the teaching situation is such that the sexes could not be segrated, then

this research indicated that the traditional classroom teaching method would be the best compromise to use.

SECTION VII

RECOMMENDATIONS

Questions which were raised but left unanswered by the results of this research could prove profitable in vocational education research on the post-secondary level. One such question was, "To what degree would the attrition rate of male students in vocational education be lowered by making the instruction in all the classes more relevant to the students proposed vocational career." There were indications that some of the students participating in this research project dropped out because they felt there was a lack of relevance to their chosen careers. It seems reasonable to expect that courses which were more closely alined with the students chosen careers would continue to hold the interest and attention of the student. This fact may have more affect for students in vocational education than in the academic fields.

A second question which was raised by this research was what effect does the method of instruction have upon the attitude changes of female students. The results for this research project led to conflicting conclusions for this question. There were indications that the female students were more highly influenced by the method of instruction than they were by the materials being presented.

Human relations courses were used in the pursuit of this research, but there were indications that these research methods could be applied to other courses in vocational edu-

cation. However, at this point there is no known substantial research being conducted in this area.

The group counseling session conducted during this research led to results which gave no clear-cut conclusions. However, the possible usefulness of the group counseling techniques should not be overlooked in vocational education research. It would appear that the group counseling techniques could play a very significant role in attitude modification for vocational education. However, further research making extensive use of these techniques should be conducted to fully investigate these possibilities.

SECTION VIII

NOTES

[1]James S. Snider and Charles E. Osgood, Semantic Differential Techniques - A Source Book, Addison, 1969.

[2]Charles E. Osgood, The Measurement of Meaning. University of Illinois, 1967.

[3]Ibid., p. 20.

[4]Ibid., p. 30.

[5]Ibid., p. 25.

[6]Ibid., p. 33.

[7]Fred N. Kerlinger, Foundations of Behavioral Research, Holt, Rinehart and Winston, 1964.

[8]Charles E. Osgood, The Measurement of Meaning, University of Illinois Press, 1967.

[9]Ibid., p. 38.

[10]Ibid., p. 58.

SECTION IX

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